

OPTIMIZE ANODE/CATHODE MATERIALS

Columbia Falls Anode Optimization

The purpose of this activity was to evaluate anode paste pitching levels and mixing conditions using both the optimized granulometry determined in Phase I and the recommended Mitsubishi granulometry. It was determined that there is no statistically significant difference between baked apparent density of anodes from the optimized or Mitsubishi granulometries for the same apparent elongation. The Technical Report No. 83-TP-5 was issued in September.

Sebree Anode Optimization

The purpose of this activity was to evaluate the granulometry, pitching levels, mixing, and pressing conditions for the Sebree prebake anode. It was determined that the existing Sebree granulometry is near optimum but a slight improvement in dry bulk density may be achieved with a coarser butts distribution. No changes in Sebree pitching parameters are recommended from the results of this study. A technical report will be issued in February.

Anode Consumption Cell

The purpose of this activity was to develop equipment and procedures at Tucson to evaluate the performance of baked carbon composites in simulated electrolytic cell conditions. The initial development is complete. We will complete the development in 1984 as a part of the Carbon Characterization Project.

Ashland Petroleum Pitch Study

Ashland A-240 petroleum pitch as an anode binder was investigated to reduce emissions that normally occur with cold-tar pitch as well as to potentially provide a new binder source. Comparable bake densities, compressive strengths, and electrical resistivity were obtained at 23% Ashland A-240 pitch and 26% Reilly cold-tar pitch. Air burn, CO₂ oxidation, and carbon anode tests were not carried out as a potential joint venture with Ashland was terminated.